

On the occurrence and identity of *Zeuxine bidupensis* (Orchidaceae)^a

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Key words/mots-clés : India/Inde, Mawphlang, Meghalaya, Orchidaceae, *Zeuxine*.

Abstract

Zeuxine bidupensis Averyanov, a rare species of terrestrial orchid, is newly reported from 'Mawphlang Sacred Grove', Meghalaya (India), which extends its distribution from Darjeeling (E. Himalaya) to N.E. India (Meghalaya). The identity of this species is also discussed to distinguish it from its close relative *Z. goodyeroides* Lindley.

Résumé

De la répartition géographique et de l'identité de *Zeuxine bidupensis* (Orchidaceae) – *Zeuxine bidupensis* Averyanov, une espèce d'orchidée terrestre rare, est nouvellement signalée à 'Mawphlang Sacred Grove', Meghalaya (Inde), ce qui élargit sa distribution géographique du Darjeeling (Himalaya Est) jusqu'au nord-est de l'Inde (Meghalaya). L'identité de cette espèce est discutée, dans le but de la distinguer de son proche parent *Z. goodyeroides* Lindley.

Introduction

The genus *Zeuxine* Lindley (Orchidaceae), belonging to the subtribe Goodyerinae of the tribe Cranichideae (subfamily Orchidoideae) is represented by *ca* 80 species (Chen *et al.*, 2009) in the world, distributed across Tropical Africa to Central Asia and West Pacific (Govaerts *et al.*,

^a manuscrit reçu le 9 février 2011, article révisé accepté le 15 avril 2011.

2011). Averyanov (in Averyanov & Efimov, 2006) described a new species of *Zeuxine*, viz. *Z. bidupensis* Averyanov from Vietnam. In the same year, Bhattacharjee & Chowdhery (2006) described another new species namely *Z. pantlingii* Av. Bhattacharjee & H.J. Chowdhery based on a collection from Mongpoo, Darjeeling District, West Bengal, India. Interestingly, both species were published simultaneously, i.e. in 2006 but from two distant localities. As both species were morphologically alike having similar vegetative as well as reproductive structures, Bhattacharjee & Chowdhery (2009) merged *Z. pantlingii* with *Z. bidupensis*.

Besides, due to close similarities with *Z. goodyeroides* Lindley, Averyanov (2008) merged wrongly his species (*Z. bidupensis*) with *Z. goodyeroides*. However, after thorough discussion with one of the authors (A.B.) and re-examining the differences (Fig. 1) between *Z. bidupensis* and *Z. goodyeroides*, Prof. Averyanov (pers. comm. in 2009) was of the opinion that *Z. bidupensis* is a distinct species and that *Z. goodyeroides* does not occur in Vietnam. At present, *Z. goodyeroides* is only reported from Bhutan, China, India, Nepal and Myanmar.

Pedersen & Suksathan (2009) reported *Z. bidupensis* from Thailand establishing a link between the two distant localities, i.e. Vietnam and India. Recently, in the month of October 2010, one of us (S.K.S) observed *Z. bidupensis* at 'Mawphlang Sacred Grove' of East Khasi Hills, Meghalaya, but could not collect the plant due to its occurrence in Sacred Grove where the collection of any sample is not allowed. The occurrence of the species in Meghalaya extends its distribution towards the North-eastern part of India and also constitutes a new record for Meghalaya in particular and North-east India in general. Detailed description of *Z. bidupensis*, table depicting the morphological differences of the same from *Z. goodyeroides* (Table 1) together with a comparison photo-plate (Fig. 1) are provided here to facilitate identification of this rare species.

Taxonomic treatment

Zeuxine bidupensis L. Averyanov in *Rheedea* 16(1): 12 (2006); Av. Bhattacharjee & H.J. Chowdhery in *Journal of Non-Timber Forest Products* 16(2): 158 (2009); H.A. Pedersen & P. Suksathan in *Taiwania* 54(4): 319 (2009). Types: VIETNAM, Lam Dong Prov., Lac Duong Dist., territory of Bi Doup – Niu Ba national park, Da Chais Municipality, around point 12°08'17" N and



Fig. 1

Zeuxine bidupensis Averyanov: A. Habit; B. Leaves; C. Flower (preserved in 70% alcohol for 6 days); D. Dorsal sepal; E. Lateral sepal; F. Petal; G. & H. Labellum; I. Pollinarium (A. Bhattacharjee 34846, CAL; H: A. Bhattacharjee 34807, CAL). *Zeuxine goodyeroides* Lindley: J. Habit; K. Flower (preserved in 70% alcohol for 6 days); L. Leaves; M. Dorsal sepal; N. Lateral sepal; O. Petal; P. Labellum; Q. Pollinarium (A. Bhattacharjee 37012, CAL).

108°40'47" E, at elevation about 1600 m a.s.l., 19 October 2005, T.T.T. Tang, T.V. Thao, N.T. Vinh HLF 5319 (holotype: HN, photo!; isotype: LE, photo!). *Zeuxine pantlingii* Av. Bhattacharjee & H.J. Chowdhery in *Sida* 22(2): 935 (2006); S. Misra, *Orchids of India*: 320 (2007). Type: INDIA, West Bengal, Darjeeling District, near Mongpoo, ca 900 m, 28 Aug. 2005, A. Bhattacharjee 34807 (holotype: CAL!).

Terrestrial herbs, 14-20 (33) cm tall. **Rhizome** 3-10 cm long, dull brownish-green, creeping, stem-like, rooting at nodes. **Roots** 0.5-6 cm long, dull yellowish-white, fleshy, with minute hairs. **Stem** 3-7 cm long, terete, purple-green to brownish-green, sometimes decumbent at base, erect above, glabrous. **Leaves** 3-6, 1.5-7 cm long, scattered to crowded, petiolate to subsessile; petiole 0.5-1 cm long (excluding the basal sheath), sheathing at base, sheath membranous, clasping; lamina 1.2-4.3 (6.7) × 0.7-1.5 (3) cm, obliquely narrow-ovate to ovate-lanceolate, obtuse at base, acute to subacute to shortly acuminate at apex, entire, coriaceous, adaxially blackish velvety-green to dark purplish-green, abaxially pale greenish-purple to reddish-grey, without any median band adaxially, 5-7-veined. **Inflorescence** a terminal spike, laxly 2-5 (14) flowered, sparsely tomentose; peduncle 7-10 cm long, with 2-3 distant sheaths; sheaths 0.6-1.9 × 2-4 mm, ovate, acuminate at apex, pink, cuspidate, clasping, membranous, glabrous, 3-veined; rachis 1.8-3 (8) cm long. **Floral bracts** 0.54-1.1 × 0.24-0.5 cm, triangular to broadly ovate, abruptly acuminate at apex, purplish-green to pinkish-red, shorter or as long as ovary, finely serrated to ciliate at margins, very sparsely pubescent at base, otherwise glabrous, 3-veined. **Flowers** 1.2-1.8 cm long, resupinate, barely opening. **Sepals** unequal, free, glabrous, 1-veined to weakly 3-veined; dorsal sepal 4.5-6 × 2-3 (4.2) mm, ovate, apex acute, pinkish-red, forming a hood with petals; lateral sepals 4.5-6 × 1-2 mm, narrowly lanceolate, apex subacute, dull pinkish-green at base, pinkish-red at apex, often spreading. **Petals** 3-5.4 × 1-1.5 mm, obliquely oblong-falcate falcate-oblongate, acute at apex, white, with scattered minute dots, adnate to dorsal sepal, often connate at apex, glabrous, 1-veined or weakly 2-veined. **Labellum** 3.9-5 mm long, white with light pinkish tinge; hypochile 2-3 × 1.9-3 mm, saccate, inside with 2 appendages (1 in either side), appendages ca 1 mm long, oblong-obconical to scale-like, sometimes hooked; mesochile not distinct, margins incurved to form flap-like structures on both sides, flap minutely papillose-pubescent; epichile entire to obscurely 2-lobed (rarely), 1-1.5 × 1-1.5 mm, obovate to suborbicular to

subquadrate, finely papillose, margins slightly crenulate. **Column** 1-2 (3.4) mm long, straight, with 2 wings under the base of rostellum, wings *ca* 0.5 × 0.2 mm, slightly incurved, obliquely triangular to rectangular; rostellum 1.7-2.5 mm long, linear, bifid, apex obtuse. **Stigma** 2-lobed, lobes ovate-convex, lateral. **Anther** 2.5-3.5 mm long, narrowly triangular to oblong-ovate, dull white with reddish tinge; pollinarium 3.5-4 mm long; pollinia 2, 1-1.5 mm long, oblong-ovate to obclavate, sectile, bifid, dull yellowish-white; caudicles *ca* 0.2 mm long; tegula 2.4-2.8 mm long, linear, semi-transparent; viscidium *ca* 0.9 × 0.4 mm, oblong, dull straw-yellow, thick. **Ovary** 0.8-1.2 × 0.18-0.25 cm, terete, pale-green to olive-green to reddish-green, twisted, glabrous.

Flowering: August-November.

Distribution: INDIA: West Bengal, Meghalaya; VIETNAM, THAILAND.

Specimen examined: INDIA: West Bengal: Darjeeling District, Mungpoo, *ca* 950 m, 05.09.2007, A. Bhattacharjee 34846 (CAL).

Note: *Z. bidupensis* is closely related to *Z. goodyeroides* but can be distinguished by the characters presented in Table 1.

Acknowledgements

The authors are thankful to the Director, Botanical Survey of India, Kolkata for providing facilities and encouragement and to Dr. Paul Ormerod, Queensland, Australia and Prof. Leonid Averyanov, Komarov Botanical Institute of the Russian Academy of Science, St. Petersburg for their valuable suggestions. One of the authors (A.B.) is thankful to Dr. H.J. Chowdhery, Emeritus Scientist, BSI, NRC, Dehra Dun for his guidance during the revisionary studies of the subtribe Goodyerinae (Orchidaceae) for 'Flora of India'.

Literature cited

Averyanov, L. 2008. The Orchids of Vietnam illustrated survey, part 1. *Turczaninowia* 11(1): 5 – 168.

Averyanov, L. & P.G. Efimov. 2006. New Orchids from Vietnam. *Rheedea* 16(1): 1 – 14.

Bhattacharjee, A. & H.J. Chowdhery. 2006. *Zeuxine pantlingii*, sp.nov. (Orchidaceae), a new species from India. *Sida* 22(2): 935 – 940.

Quatre nouvelles espèces d'Orchidaceae du Brésil^a

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Mots-clés/Keywords : Brésil/Brazil, *Centroglossa*, Orchidaceae, Ornithocephalinae, *Pabstiella*, Pleurothallidinae.

Résumé

Quatre nouvelles espèces sont décrites dans les genres *Centroglossa* (Ornithocephalinae) et *Pabstiella* (Pleurothallidinae), toutes originaires du sud-est brésilien. Planches botaniques et photographies accompagnent leurs descriptions. Chacune de ces espèces est comparée avec ses plus proches parentes. Une clé modifiée d'identification des espèces du morphogroupe *Pabstiella hians* est proposée.

Abstract

Four new Orchidaceae species from Brazil – A new *Centroglossa* species (Ornithocephalinae) and three new *Pabstiella* (Pleurothallidinae), from South-eastern Brazil, are described and illustrated. Each one is compared with its closest relatives. A modified key to the species within the morphogroup "*Pabstiella hians*" is proposed.

Resumo

Quatro espécies novas de Orchidaceae (Ornithocephalinae: *Centroglossa* e Pleurothallidinae: *Pabstiella*), originárias dos Estados do Espírito Santo e do Paraná, são aqui descritas e ilustradas. Cada uma é comparada com as mais próximas espécies. Uma chave para a identificação das espécies do grupo « *Pabstiella hians* » é proposta.

a : manuscrit reçu le 12 mars 2011, manuscrit révisé accepté le 11 mai 2011.

Le genre *Centroglossa* est un genre exclusivement brésilien, endémique de la forêt atlantique et comprend à ce jour (Pabst & Dungs, 1975 ; Govaert *et al.*, 2011) cinq espèces de distribution restreinte : *C. castellensis* Brade, d'Espírito Santo, *C. greeniana* (Reichenbach f.) Cogniaux, de Rio de Janeiro et São Paulo, *C. nunes-limae* Porto & Brade, de Minas Gerais, *C. macroceras* Reichenbach f. et *C. tripollinica* Barbosa Rodrigues, qui vont de l'Etat d'Espírito Santo à celui de São Paulo en passant par Minas Gerais. L'un de nous, N. Sanson, a collecté dans les environs de Domingos Martins et de Conceição do Castelo, Espírito Santo, des plantes de ce genre qu'il ne nous a pas été possible d'attribuer à l'une quelconque de ces espèces et que nous décrivons ci-dessous.

Par ailleurs, dans le cadre de la révision des Pleurothallidinae d'Espírito Santo que mène le premier auteur, plusieurs taxons non connus, du genre *Pabstiella*, ont été découverts : un dans la collection d'orchidées du second auteur, un autre dans celle de Renato Barbosa da Silva, orchidophile d'Espírito Santo, et un troisième proposé à la vente par « Recanto Orquideas », Parana. Ils sont également décrits ici. Le genre *Pabstiella*, créé par Brieger & Senghas (1976), à l'époque monotypique, a été ressuscité à la suite de l'étude phylogénétique de Pridgeon *et al.* (2001). Divers auteurs y ont transféré des espèces classées jusqu'ici dans le genre *Pleurothallis* sensu lato, mais il n'existe pas encore de consensus sur une définition morphologique précise du genre si bien que les avis divergent sur le bien-fondé de plusieurs de ces transferts (Pridgeon & Chase, 2001 ; Luer, 2007 ; Chiron & Ximenes Bolsanello, 2010 ; Forzza *et al.*, 2010 ; Kollmann, 2010 ; Govaert *et al.*, 2011). Nous avons déjà argumenté notre point de vue sur la question (Chiron & Ximenes Bolsanello, 2010) et n'y reviendrons pas ici. Les trois taxons dont il est question dans cet article font clairement partie du genre *Pabstiella*. Nous saisissons également l'occasion de ces descriptions pour valider une combinaison nouvelle dans ce genre.

Centroglossa aurantiaca* Chiron & N. Sanson, *sp. nov.

Haec species Centroglossa nunes-limae similis est sed pseudobulbis foliisque duplo brevioribus sed pro rata latioribus, pedunculo brevioribus, floribus aurantiacis duplo minoribus, sepalis apice rotundatis, petalis margine integris, labelli lobo intermedio calloso, anthera apice truncata differt.

Type : Brésil, Espírito Santo, Mun. Domingos Martins, collecté par N. Sanson, s.n., ex *Chiron10129* (Holotype : MBML).